REMARKS/ARGUMENTS

For Specification Amendments:

Some paragraphs are amended by replacing "scatter supported wavelength converter" with "scatterer supported wavelength converter", due to the syntactic reason.

Paragraphs [0006], [0008], [0031], and [0033] are amended by inserting a phrase "for encapsulation". It is well known in the art that a molding material filled in the recess or the cup of a LED package is for encapsulation. That is the "molding material" here functions an encapsulating material. No new matter has been added.

In paragraph [0030], the "as a particle" inserted in the sentence "In addition, each individual scatterer supported wavelength converter 100, 200, 300 is a composite unit, as a particle, of the wavelength converting activator 104, 204, 304 and the scatterer 102, 202, 302, respectively." can be supported by Figs. 3-5 and this sentence per se. Now new matter has been added.

In paragraphs [0026]-[0028], "having a physical or chemical bonding therebetween" inserted in the sentence "The scatterer supported wavelength converter comprises a scatterer and a plurality of wavelength converting activators having a physical or chemical bonding therebetween." can be supported by the description that "the present invention scatterer supported wavelength converter is a physical composite material or a chemical composite material" in the same paragraph. No new matter has been added.

In paragraphs [0026]-[0028], the sentence "In addition, different phases may exist in the interface between the scatterer 102 and each of the wavelength

converting activators 104." has been amended to be "In addition, different phases may exist in the interface between **the phase of** the scatterer 102 and **the phase of** the wavelength converting activator 104", and the like, for wording. For each scatterer supported wavelength converter particle of the present invention, the scatterer is one phase and the wavelength converting activator is another phase. No new matter has been added.

Therefore, the applicants politely request acceptance of the above mentioned specification amendments.

For Claim Amendments:

Claims 1-7, 12-18, 20, and 21 are currently amended. Claims 8 and 19 are canceled. The amendment to the claims is made according to the disclosure in the specification, such as paragraphs [0026]-[0028], [0031], [0033], and [0040], and according to Figs. 3-5. No new matter has been added. Therefore, the applicants politely request acceptance of the above mentioned claim amendments.

Claim Rejections

1. Claims 1-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu et al. (6,069,440) (hereinafter Shimizu).

Response:

Claims 1 and 12 have been amended to overcome this rejection.

The lead type light emitting diode package and the chip type light emitting diode package according to the present application comprises an encapsulating material including a plurality of scatterer supported wavelength converter particles therein. Each scatterer supported wavelength converter particle may have a structure, for example, as shown in Figs. 3-5. The scatterer supported wavelength converter particle comprises one phase of scatterer and at least one phase of wavelength converting activator. The scatterer is a scattering material for repetitively scattering and diffusing light beams (paragraphs [0026], [0027], and [0028]). The wavelength converting activator is a wavelength converting material (also paragraphs [0026], [0027], and [0028]). Each of the scatterer supported wavelength converter particles is distributed in the encapsulating material of the light emitting diode package according to the present invention.

The scatterer supported wavelength converter particle has a size of few microns to about 30 microns. Microscopically, it possesses different phases of the scatter and the wavelength converting activator. Macroscopically, it may be deemed to have one fused phase from the different phases of the scatter and the wavelength converting activator. A physical or chemical bonding may exist between the scatterer and the wavelength converting activator. The structure of the scatterer supported wavelength converter particle may be one such that the wavelength converting activators adhere to portions of a surface of the scatterer, encapsulate the scatterer, or are dispersed in the scatterer, and the like. When the scatterer supported wavelength converter particles are used in a LED packaging process, they are mixed with an encapsulating material and **distributed** in the encapsulating material.

However, in the prior art, fluorescent materials, scattering materials, and other materials are usually **added separately to and mixed** in a resin (molding material) used for packaging, such that the fluorescent materials, scattering

materials, and other materials randomly and separately exist in the resin. When different material particles, like scattering material particles and fluorescent material particles, are mixed in the resin used for packaging, inherently, they can not achieve a substantially uniform mixing state due to different material particles having different weights, different shapes, different physical properties, and different chemical properties. Particularly, the scattering materials, usually in the form of particles or bubbles, always have this problem. Once this nonuniform phenomenon occurs, the whole tone homogeneity and brightness uniformity are affected. Furthermore, when fluorescent materials, scattering materials, and other materials are used in a LED packaging process, the amount ratio is critical. The amount ratio will effect the light emitting efficiency. Therefore, it encounters more trouble in the packaging process for the prior art to use fluorescent materials, scattering materials, and other materials as different particles.

In the present application, in contrast to the prior art light emitting diode package, each of the scatterer supported wavelength converter particles is a particle formed from at least one wavelength converting activator and the scatterer. **The nonuniform phenomenon occurring during the mixing procedure in the prior art is thus avoided** because the problem in which different material particles have different weights, different shapes, different physical properties, and different chemical properties does not exist any more. Therefore, there are many advantages in the present invention as described in the specification. For example, a satisfactory whole tone homogeneity and brightness uniformity can be achieved, and furthermore, the way that the scatterer supported wavelength converter particles are embedded in an encapsulating material can be applied to various package structures using convenient manufacturing processes without the ingredient amount ratio problem.

In view of the features and advantages of the present application described

above, the cited reference U.S. patent No. 6,069,440 (hereinafter Shimizu) discloses a light emitting diode package which is different from the light emitting diode package of the present application.

Shimizu teaches that a phosphor is contained in a molding material or coating material (col. 8, lines 45-52) and a dispersant may be used together with the phosphor (Col. 16 lines 50-52). However, in view of the specification, Shimizu teaches that the dispersant and the phosphor can be present simultaneously but separately in the coating material or molding material. Shimazu does not teach or suggest that the dispersant and the phosphor may be combined into a particle in advance and then the particle be added to and present as a particle in the coating material or the molding material. That is, **the dispersant and the phosphor** taught by Shimizu **are distributed separately, but not present as "a particle comprising one phase of dispersant and one phase of phosphor", in the molding material.** Such structure taught by Shimizu is similar to the prior art described above and is different from the present application.

Furthermore, Shimizu teaches that the function of fluorescent materials (or phosphor) to absorb a light, change it to a different light, and then emit the light (col. 6, lines 25-30), and the function of dispersant to unsharpen the directivity of light from the light emitting component, result in an increased angle of view (col. 16, lines 64-66). Thus, as taught by Shimazu, the fluorescent material and the dispersant have their own function, separately. While, in the present application, the scatterer supported wavelength converter particle integrally has functions of both scattering and wavelength converting.

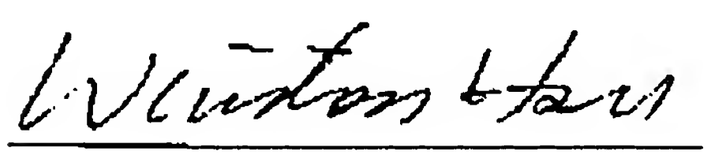
In light of the above-mentioned reasons, the applicants submit that claim 1 of the present application relating to "a lead type light emitting diode package" is

novel over Shimizu. Reconsideration of claim 1 is hereby respectfully requested. As claims 2-7 and 9-11 are dependent upon claim 1, they should be allowed if claim 1 is allowed. Therefore, reconsideration of claims 2-7 and 9-11 is politely requested.

As to claim 12 of the present application, the chip type light emitting diode package also comprises an encapsulating material as descried for claim 1 in the above. Therefore, claim 12 should be allowed for the same reason described in the above for claim 1 if claim 1 is allowed. Reconsideration of claim 12 is hereby respectfully requested. As claims 13-18 and 20-21 are dependent upon claim 12, they should be allowed if claim 12 is allowed. Therefore, reconsideration of claims 13-18 and 20-21 is politely requested.

Applicants respectfully requests that a timely Notice of Allowance be issued in this case.

Sincerely yours,



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